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A History of Attempts to Commercially Fish
the Mackenzie River Delta, N. W. T.

by

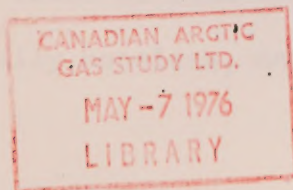
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March 1973

MACKENZIE VALLEY PIPELINE HISTORY
EXHIBIT NO. 5-37 LA 5 April 6/26
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Council.

A submission prepared for Section Three of the Federal-Territorial
Task Force Report on Fisheries Development in the Northwest
Territories.



INTRODUCTION

The source of information for this history has primarily been government files that were available in Yellowknife. The information for some years is more complete than for others as reporting field staff frequently changed as did the quality and extent of fisheries information collected.

This history is one of several and is intended to give some insight into problems that have faced commercial fisheries development in the Northwest Territories and to provide information on quotas, fishing effort and catch statistics for the region. Similar problems may be expected to be encountered in the future.

All weights of fish referred to in the text are round weights unless stated otherwise. In this regard the following terms are defined:

round weight - the weight of a whole or round fish just as it is taken from the water.

dressed weight - the weight of a fish that has had its entrails and gills removed.

pan-dressed - a fish that has had its head, tail, fins, gills, entrails, and scales removed.

fillets - fillets are sides of fish cut lengthwise from the backbone, are practically boneless, and often have the skin removed.

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This history pertains only to attempts to commercially fish the Mackenzie Delta proper and does not include fisheries attempted at Kendall Island, Shingle Point, Kittigazuit (Whitefish Station), Tuktoyaktuk or any inland lakes in that area. In particular, the area generally referred to is that bounded by latitude 68-10N, the Northwest Territories - Yukon border, latitude 69-20N and longitude 133-30W. (See Figure 1). This area was designated Area 5 in 1963 by the Department of Fisheries for the purpose of establishing fishery quotas. Since its establishment, the whitefish quota for this area has been 50,000 pounds annually.

Prior to 1960 fishing in the Mackenzie Delta had been conducted by Inuit and Indian inhabitants. The Anglican and Roman Catholic Missions, the Royal Canadian Mounted Police and a few traders were involved in fishing, but principally through hired Inuit and Indian help. Since 1960, fishing efforts have been organized by the Federal and, later, Territorial Governments.

The whitefish commercially harvested in the Mackenzie Delta is the broad whitefish (Coregonus nasus (Pallus)) while the humpback whitefish (Coregonus clupeaformis (Mitchill)), which is the mainstay of the Great Slave Lake fishery, is heavily infested with tapeworm cysts and is used mainly for dog food.

1960

A survey of the resources of the Mackenzie River Delta was undertaken in 1959 to find a means to help alleviate the depressed condition of the native people of the area. The Department of Northern Affairs and National Resources undertook the development of two fisheries in the summer of 1960, one along the coast operating out of Kittigazuit (Whitefish Station) and one in the Delta proper at the mouth of the Peel River.

The Peel River operation was intended to improve the existing fishery by providing a barge-mounted freezer at the site along with a supervisor to instruct the fishermen in the proper ways of handling and dressing fish. Plans called for operating the fishery for the month of July, with a forecasted production of 20,000 pounds of whitefish to supply the Anglican Mission hostel at Fort McPherson. The barge-mounted freezer, when filled, could be towed to Fort McPherson, unloaded, then returned to the site.

The fishery did not commence until the third week in July as the bulk of supplies ordered for the fishery did not arrive and the freezing equipment for the barge required complete overhauling. The equipment used for the Peel River fishery was required at Kittigazuit so the fishery only operated for one week. Three thousand pounds of whitefish were prepared and later sold to the Department of Indian Affairs for relief issue. The



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fishermen froze an equal amount for their own use storing the fish in the Indian Affairs freezer in Fort McPherson. The Fort McPherson people also put up large quantities of dried fish, the surplus of which was sold at Arctic Red River and Fort Good Hope.

The fishery conducted at Kittigazuit was hampered by the unreliable freezing equipment but it did provide 12,000 pounds of whitefish for the Inuvik market as well as 178 gallons of muktuk. Fishermen received 25 cents per pound for dressed whitefish which retailed for 25 to 28 cents per pound.

1961

The Department of Northern Affairs and National Resources had planned to establish an extensive fresh frozen fishery based at Aklavik. A whitefish quota of 40,000 pounds had been established for the Delta. Due to a failure to receive equipment, boats, barges and other materials in operational order, the planned project was considerably scaled down. A limited fresh frozen fishery was carried out at Aklavik in July using two Anglican Mission freezers and one small ex-Navy freezer, all old and unreliable. The fishery in the Peel and West Channels of the Mackenzie River yielded the following dressed weights of fish: 12,167 pounds of broad whitefish (average dressed weight 3.11 pounds); 1,153 pounds of humpback whitefish (average dressed

weight 2.38 pounds); 2,129 pounds of inconnu (average dressed weight of 14.19 pounds). In the case of the inconnu, only large fish over 12 pounds were accepted. Total fishing effort in the Peel and West Channels was 509 net days using 4 1/2 inch mesh nets, 150 feet long, 6 feet deep.

In all seventeen thousand pounds of fish were frozen and 9,739 pounds were smoked. Fifteen people were employed in the fresh frozen fishery receiving 17 cents per pound for their catch while twelve were employed producing smoked fish for which they received 20 cents per pound. One of the freezers malfunctioned with the result that approximately 6,000 pounds of fish spoiled and was sold for dog food. The operation demonstrated that the fishermen in the area were able to learn the commercial methods of supplying quality fish. The use of obsolete equipment, however, resulted in considerable waste of the resource.

1962

Due to the lack of adequate freezer storage space at Aklavik, a fresh frozen fishery was not carried out in 1962. Some fish were caught and dried that summer for sale in Inuvik and Aklavik.

1963

In 1963 the Department of Northern Affairs and National Resources instituted a whitefish fishery at Holmes

Creek on the East Channel of the Mackenzie River approximately 80 miles north of Inuvik. (See Figure 1). A quota was set at 50,000 pounds. Past experiences showed that the unloading of heavy equipment at fishing sites was very impractical so a mobile-type fishery was to be implemented. The operation was to consist of mounting freezer equipment onto a barge and towing the barge to the fishing grounds where fishermen would bring their catch and have it cleaned, glazed, and stored in the freezer. This was to be repeated until the holding freezer was filled to capacity. The barge would then be towed to a holding center where the fish would be discharged and placed in a large walk-in freezer. The barge would then be towed again to the fishing area and refilled. This method was to be repeated until the quota was filled. The Holmes Creek fishery plan was to transport one load of 12,000 pounds to Aklavik and a second load to Inuvik where the barge would be stored for the winter.

The barge was placed so that fishermen operated within a seven mile radius of the freezer, requiring no ice for the fish prior to delivery to the freezer. Scheduled operation dates were from July 25th to the end of August but the barge-mounted freezer, previously used as a commercial walk-in freezer at Tuktoyaktuk, experienced mechanical difficulties which delayed the initial start date by one week. Fish caught during this time by the three fishermen employed were dried and delivered to Inuvik for resale.

Fishing commenced on August 9 and ended August 28.

The average size of whitefish caught was 3.71 pounds and the total fishing effort, using 4 1/2 inch mesh nets, 150 feet long and 6 feet deep, was 206 net days. The total weight of whitefish caught was 14,355 pounds.

Recurring mechanical problems with the freezer prevented the initial shipment to Aklavik. Instead, two 7,500 loads of glazed whitefish and inconnu were shipped to Inuvik and stored in freezers. However, one half of this total production was either in the initial stages of deterioration before it was processed in the barge freezer or deterioration had occurred during the time it had been frozen. In an attempt to salvage as much of the product as possible, 4,200 pounds of fish were smoked. Approximately 3,000 pounds were too soft for smoking and were sold as dog food. Of the remaining 7,800 pounds, 6,100 pounds were stored and the remainder was introduced to various agencies on a promotional basis, or sold. The retained dressed and frozen whitefish, when inspected by the Department of Fisheries, was found to be in merchantable condition.

Fishermen were paid 15 cents per pound for the whitefish that was fresh frozen and 20 cents per pound for the smoked. Selling prices f.o.b. Inuvik were 30 cents per pound frozen dressed and 40 cents per pound smoked fillets. Costs of the project amounted to approximately 28 cents per pound not including operation

and depreciation costs of the barge and related equipment nor the costs of nets and storage space in Inuvik. Had these been included, an estimate of the cost price would have been near 75 cents per pound.

There appeared to be little demand for retail sales of dressed whitefish in the Delta other than from hostels and the Inuvik Rehabilitation Centre. The reason was that most of the local people could harvest all the indigenous fish they required.

1964

In 1964 the Department of Fisheries received a request from the McInnis Fishing Company to take one million pounds of fish from the Mackenzie Delta area, the bulk of which would be jumbo whitefish and lake trout. This request was denied on advice from the Department of Northern Affairs and National Resources on the grounds that the fish in the lower Mackenzie should be reserved primarily for domestic use and secondly for commercial development by the local people.

The fishery at Holmes Creek was continued with a requested 65,000 pound whitefish quota and an 80,000 pound quota for roughfish. The Department of Fisheries maintained the 50,000 pound whitefish quota for Area 5 and stated that the additional 15,000 pounds requested be taken from the Area 2 quota of 20,000 pounds in the region directly north of Area 5. The

quota for roughfish was granted. A barge-mounted fish reduction plant used to produce concentrated fish meal for dog food was shipped to Holmes Creek from Kendall Island where it had operated the previous year primarily utilizing whale meat. At Holmes Creek the plant was to utilize the roughfish and culled whitefish.

Initially fishing started at Dillons Camp (See Figure 1) on the Main Channel of the Mackenzie River on July 16, but on a request from the acting Industrial Superintendent the operation was moved to Holmes Creek on July 18. Nine fishermen caught 77,354 pounds of whitefish (42,450 pounds of marketable whitefish, 34,904 pounds of culls) and 11,301 pounds of roughfish (cisco, pike, sucker). The fishermen received 15 cents per pound for dressed marketable whitefish and 3 cents per pound for culls and roughfish, earning \$6,200.00 in revenue for 31,783 pounds of whitefish and 33,349 pounds of roughfish and culled whitefish sold to the plant. The total fishing effort employed was 720 net-days with a catch per unit effort of 123 pounds per net day. Nets used were 4 1/2 and 5 inch mesh. Employment also consisted of three people employed filleting (for those fishermen who did not fillet their own), three employed freezing and five employed in the reduction plant earning total wages of \$3,239.00. Fishing concluded on August 18th.

Finished products consisted of 2,200 pounds of fillets (production cost 38 cents per pound), 26,460 pounds of frozen

dressed fish (production cost 24.5 cents per pound) and 5,000 pounds of pure fish meal concentrate (production cost 76 cents per pound). (Note: these production costs did not include depreciation of capital equipment). The frozen dressed whitefish were offered for sale in one hundred pound boxes at 35 cents per pound. The intended market was institutions - hostels, the hospital, restaurants and the Rehabilitation Centre. This size was too large for most people to purchase at one time due to the cost and lack of suitable storage space. Consequently retail stores were buying the product and re-selling it at 87 cents per pound, a price out of the reach of most people.

The major difficulty again encountered in the fishery was mechanical breakdowns of the barge-mounted freezer. These breakdowns necessitated the return of the freezer barge to Inuvik for repairs and, coupled with a collision between the freezer barge and another barge, kept the freezer inoperable during most of the summer. The resultant quality of the product was reportedly poor due to improper packaging and glazing methods. Between 4,000 and 5,000 pounds of whitefish including all the fillets were condemned due to their low quality attributable to slow freezing. The blast type evaporaters on the freezer were likely responsible for the product being frozen too slowly with

oxidation occurring.

The fish meal concentrate was offered for sale at 30 cents per pound f.o.b. Inuvik. However, the oil content of the concentrate was too high to allow long term storage with the result that oxidation, discolouration, rancidity and odorous smells resulted. The high water content of the concentrate due to inefficient drying equipment in the reduction plant caused it to go mouldy in the bags during storage.

It was suggested that the fishery in 1965 be relocated from Holmes Creek to Dillons Camp on the main channel of the Mackenzie River. The main disadvantage of the Holmes Creek location was its distance from Aklavik (140 miles) and Inuvik (80 miles) making the movement of equipment and fish products by barge quite costly. As well, there were few suitable areas for net setting. (In the delta the water is shallow and fairly fast flowing so nets can only be set in eddies. In most places in the delta the eddies are too small for a full sized net and the fishermen usually cut the net to suit the fishing location). A fishery at Dillons Camp could be run by as little as three men. With Aklavik only a two hour trip by boat and Inuvik three and one half hours (51 miles), the fish could be collected twice daily, packed in ice and hauled to Aklavik. There were good areas for net setting and good quality whitefish in the area. Holmes Creek could then be fished by Tuktoyaktuk fishermen.

As there were not fish on hand for sale at Aklavik, a winter fishery was attempted. Approximately 11,000 pounds of whitefish were produced for local sale at a cost of \$2,848.00. Fisherman response to the winter fishery was mixed with some eager while others fished only a few days, then left their nets under the ice requiring them to be later chopped out.

1965

By March of 1965 between 15,000 and 20,000 pounds of whitefish at Inuvik and 9,000 pounds of whitefish at Aklavik still remained to be sold. In an effort to dispose of this large inventory, the selling price was dropped to 25 cents per pound. A delta fishery run by the Department of Northern Affairs and National Resources was planned to be undertaken only if inventories indicated that it should. However, a private company from Hay River, the Menzies Fish Company Limited, was granted a commercial quota of 125,000 pounds of whitefish for the entire Mackenzie Delta provided local markets were supplied and local residents employed. This fishery, in the central delta between Aklavik and Inuvik, was operated in conjunction with a char fishery at Pauline Cove (Herschel Island) and Ptarmigan Bay (Yukon Coast). Fish from the various sites were picked up weekly by a collector boat, packed in ice in plastic bags, and shipped fresh to Edmonton by

air from Inuvik. The quality of the whitefish was reported to be excellent. The Department assisted in the fishery by renting nets to fishermen who provided fish to Menzies for export. However, in mid-September the collector boat was crushed by ice off the Yukon Coast. Consequently only 19,930 pounds of whitefish were taken from the delta.

Fishermen received 14 cents per pound for jumbo whitefish (4.5 pounds), 10 cents per pound for mediums (3.5 pounds), and 5 cents per pound for smalls (2.5 pounds) dressed weight. The Department received numerous complaints by some fishermen of unfair weight reduction and cheating of records by Menzies' scaleman. When investigated it was found in most cases the complaints were unfounded. As Menzies paid cash for the fish on delivery, it was customary for some of the fishermen to frequently travel to Inuvik to imbibe at the local drinking establishment. As a result fish nets were not tended for lengthy periods of time resulting in drowned fish in the nets. Refusal to purchase soft fish by Menzies precipitated most of the complaints by the laggard fishermen. The weight reduction was attributable to a shrinkage factor commonly encountered. Many of the nets provided by the Department were not returned as the fishermen, believing the nets belonged to Menzies, refused to return them until their outstanding claims against the company

were settled.

The reduction plant which had operated at Holmes Creek in 1965 was moved to a reindeer project at Atkinson Point. Sales of the product had been slow due to customer complaints that the concentrate was too strong for the dogs. Unfortunately the people were unaware that the concentrate was to be mixed with roughage additives prior to feeding. The remainder of the concentrate, approximately 4,000 pounds, was disposed of to destitute trappers. Some whitefish from the previous year's operation still remained to be sold in Inuvik and the price was lowered again, this time to 10 cents per pound.

A market survey completed in November of 1965 showed the following characteristics existed in the delta:

1. The Royal Canadian Navy consumed considerable amounts of fish but were not allowed to buy locally.
2. Two hostels used fish but preferred to buy directly from the fishermen because
 - i) it was cheaper to buy whole fish (compared to fillets) and this form of fish suited institutional needs best.
 - ii) they preferred to see fishermen receiving full benefit for his production, eliminating the middleman.
3. The following outfits expressed willingness to use the local product - Hudson Bay Company (Inuvik and Aklavik)

Semmler's Store, the Mackenzie Hotel and the hospital.

Demand was estimated at 9,500 pounds per annum with 45 cents per pound an acceptable price. The production cost for an improved operation at Holmes Creek was estimated to be 38.5 cents per pound.

Near the end of 1965 a scheme for fishing the Mackenzie Delta was presented by a group of local delta people spearheaded by the leaders of the Ingemo Group, an association representing the various communities. The plan involved a loan of \$250,000 for equipment expansion, a quota of 750,000 pounds, and the formation of a large co-operative of all the peoples in the Mackenzie Delta. This bold proposal never went beyond the planning stage when it was shown that transportation costs to the southern markets would increase the price of whitefish to a point where it could not compete with whitefish harvested in the south.

1966

A test fishery was proposed to determine production costs, shipping and marketing procedures. A quota of 200,000 pounds round weight producing 80,000 pounds of dressed whitefish was suggested. The barge-mounted freezer was to be utilized with the fish weighed, frozen, glazed, packed in individual polyethylene bags and shipped in 70 pound boxes to Edmonton. Fishermen were

to receive 15 cents per pound dressed weight. Cost of the operation was estimated to be \$35,240. On June 6th it was decided the proposed fishery project would have to be postponed until 1967 as the necessary funds required to finance it were not available.

Menzies Fish Company Limited again received a 125,000 pound quota for the Delta region. Its efforts were concentrated on the char fisheries at Cape Parry and Herschel Island but it did harvest 63,998 pounds of fish (all species) in the Mackenzie Delta using local fishermen.

1967 - 1971

Various commercial fisheries were proposed for the delta but none were implemented.

1972

After two years of consideration, a small fishing operation was established at Holmes Creek to supply the local Inuvik whitefish market. A survey of suitable sites in the Delta at which a whitefish fishery would be located (i.e. a location having non-infested whitefish populations) had been conducted in 1970. The recommended areas of Kidluit Bay and Kittigazuit (Whitefish Station) were considered too far from the Inuvik market. (See Figure 1). Consequently the Holmes Creek site was chosen because its whitefish population had been exploited in previous

fisheries and it was thought the creek would be a good source of uncontaminated water. A quota of 50,000 pounds of whitefish was set.

Prior to the commencement of the fishery, a meeting was held in Inuvik, attended by personnel from the Northwest Territorial Government, Fisheries Service and the Freshwater Fish Marketing Corporation. The object of the meeting was to focus attention on the fact that the Northwest Territorial Government was interested in exploring the feasibility of utilizing the apparently abundant fisheries resources of the Delta. It was emphasized that the Holmes Creek fishery, undertaken to supply local markets, was in no way to be considered a forerunner of a larger operation until the economics of supply, production and marketing clearly indicated that larger investments were justified. The prime objective in the development was identified to be the involvement of the people native to the area.

With the fishery intended to commence at the first of July, materials and supplies were ordered prior to the end of May. However, the portable cooler building and the portable filleting plant were late in arriving and when they did, equipment and parts were missing. Fishing finally commenced on August 23 after many delays, most of which were attributable to modifications required for the cooler. Five fishermen initially started fishing

but due to the recurring delays, two fishermen left for alternate employment on August 29. Fishing ceased during the first week of September with the season's production of whitefish as follows:

dressed	2,743 pounds
pan ready	548 pounds
round	378 pounds
fillets	105 pounds

The finished product was transported by air from Holmes Creek to Inuvik. The approximate expenditure on the operation was \$30,000 with capital equipment accounting for about \$20,000 of this total. Fishermen received \$1,181 for their fish.

The cooler building proved inadequate as the cooling unit was strictly a holding unit and could only lower the temperature to 20°F. A second freezing unit was installed but was too small to be effective as the temperature could only be lowered to 10°F. At this temperature, a period of 24 hours was required to freeze the fish. Minimum freezer requirements were a temperature of -10°F. The filleting plant proved to have insufficient slope on the floor to provide adequate drainage.

The ideal fishing time at Holmes Creek was found to be from the first of July to the middle of August. Fish were abundant and the creek water was clear. After August 15, the creek flow diminished and the ocean tide, coupled with strong onshore winds, pushed back the creek water daily. Consequently,

the creek water was extremely dirty for about 5 hours daily and could not be used for making ice or washing fish. Water from a small nearby lake was utilized during these periods. In addition creek samples tested by the Fisheries Service showed fecal coliforms present requiring chlorination treatment of the water prior to its use.

A marketing survey was carried out in the Mackenzie Delta in an attempt to estimate local demand. This was part of a broad survey conducted by the Freshwater Fish Marketing Corporation for the Government of the Northwest Territories to determine the demand for fish in the western part of the Northwest Territories. The results of the survey showed the annual demand, of which Inuvik was the major market, to be:

- i) 3,000 to 6,000 pounds of frozen whole whitefish wholesaling at 40¢ per pound.
- ii) 3,000 to 6,000 pounds of frozen dressed whitefish wholesaling at 45¢ per pound.
- iii) 20,000 to 27,000 pounds of frozen whitefish fillets wholesaling at 75¢ per pound.

Other nearby centres, such as Aklavik, were reasonably self-sufficient and the selling of Holmes Creek whitefish in any settlement other than Inuvik would presently be uneconomical. The survey also showed that exporting whitefish to southern markets could become feasible only if transportation costs decreased

substantially or the price of whitefish increased.

1973

Plans for 1973 call for continuation of the Holmes Creek fishery. Freezing equipment will be installed at the site to replace the inefficient coolers used in 1972. The portable filleting plant, which was of metal construction, will be replaced by a conventional timber structure. Every effort will be made to harvest the full 50,000 pound whitefish quota to supply the local market.

It had been extended to hold a meeting between personnel of the Northwest Territorial Government, Fisheries Service and the Freshwater Fish Marketing Corporation following the completion of the 1972 fishery to evaluate the operation. However, the limited success of the fishery postponed such a meeting until completion of the 1973 Holmes Creek fishery.

Conclusions

The problem inherent to establishing a local viable fishery in the Mackenzie River Delta does not lie in obtaining sufficient quantities of fish. The past history indicates that maintaining a good quality product from the time it is caught to the time it is marketed is the major difficulty. A complicating factor is that there are two species of whitefish in the delta inhabiting the same locations and both are caught with the same gear. The larger species, locally called jumbos (broad whitefish

- Coregonus nasus (Pallus)), are free of parasites and are highly
1
regarded by the local people. The smaller species (humpback
whitefish - Coregonus clupeaformis (Mitchill)) is infested with
parasites and is traditionally regarded as dog food by the local
people.

Another factor is that in the past, the end product has
primarily been dressed whitefish. The hotels, schools, and
the majority of the general public prefer filleted and packaged
2
whitefish.

Transportation costs to southern markets from the
Mackenzie Delta are presently high due to the absence of road
and rail access and the long distances involved. It would seem
uneconomical to attempt to commercially export Mackenzie Delta
whitefish to the south where it must compete with whitefish
produced from Great Slave Lake, Lake Winnipeg and the Great
Lakes which have the advantage of cheaper modes of transportation
and better accessibility to the market. In the foreseeable
future the potential for any Mackenzie Delta commercial fishery
would appear to lie in marketing the produce locally in Inuvik
and in nearby northern population centres.

1. McPhail, J.D. and Lindsey, C.C. Freshwater Fishes
of Northwestern Canada and Alaska, Bulletin 173, Fisheries Research
Board of Canada, 1970, page 89.

2. These two factors concerning the Delta fishery were
expressed by H. M. Budgell, Fisheries Specialist, Dept. of I.A.N.D.
to R. McLeod, Freshwater Fish Marketing Corp. in a letter dated
June 9, 1972.

BIBLIOGRAPHY

McLeod, R. H.

A Fish Marketing Study, Northwest Territories.
Freshwater Fish Marketing Corporation, 1972
98 p.

McPhail, J. H. &
Lindsey, C. C.

Freshwater Fishes of Northwestern Canada and
Alaska. Bulletin 173, Fisheries Research
Board of Canada, 1970, 373 p.

Files of the Government of the Northwest
Territories and the Federal Department of
Northern Affairs and National Resources.

